

Remarks

Favorable reconsideration of this application, in view of the above amendments and in light of the following remarks and discussion, is respectfully requested.

Claims 1-4 and 9-12 are currently pending in the application; Claims 1, 3, and 9 having been amended by way of the present response. Applicants respectfully assert that support for the changes to the claims is self-evident from the originally filed disclosure, including the original claims, and that therefore no new matter has been added.¹

In the Office Action Claims 1-4 and 9-12 are rejected under 35 U.S.C. § 102(b) as being anticipated by German Publication No. 37 36 364 (the '364 publication). Applicants respectfully request that the rejection of the claims be withdrawn for the following reasons.

The present invention is directed to a structure including first and second materials and a tapping screw (e.g., as recited in independent Claim 1) as well as a method of forming such a structure (e.g., as recited in independent Claim 9). Independent Claim 1 recites that the first material includes a single plate having top and bottom surfaces, the top and bottom surfaces defining a hole with a surface to be threaded therebetween and defining a concave portion and a convex portion surrounding the hole and having diameters larger than the hole, the concave portion defined in the top surface. The convex portion is defined in the bottom surface. The plate has a thickness of 1 millimeter or less adjacent the concave portion, and the convex portion extends a depth of at most one half the thickness of the plate. The second material contacts the top surface of the first material such that a hole defined in the second material is aligned with the hole, the concave portion, and the convex portion in the first material. The tapping screw is disposed through the holes, the concave portion, and the convex portion in the first and second materials to connect the first and second materials. A threaded portion of the tapping screw cooperates with a threaded surface of the first material

¹ Applicants respectfully assert that support for the changes to independent Claims 1 and 9 is provided, in part, from original dependent Claim 4.

that is tapped with the tapping screw, and a head of the tapping screw contacts the second material.

Independent Claim 9 recites forming in the first material a through hole and a concave portion on a top surface of the first material. The first material includes a single plate and has a thickness adjacent the concave portion, and the convex portion extends a depth of at most one half the thickness of the first material. A second material contacts the top surface of the first material such that a through hole defined in the second material is aligned with the through hole and the concave portion in the first material. The first and second materials are connected by disposing a tapping screw through the concave portion and the through holes of the first and second materials such that a head of the tapping screw contacts the second material.

The Office Action seems to assert that Figure 2 of the '364 publication shows a first material or plate 3a and 5a, a second material 6, and a tapping screw 9. Applicants respectfully assert that even if Applicants agreed with these assertions, which Applicants do not, the '364 publication still does not teach or render obvious to claimed features recited in independent Claims 1 and 9.

Specifically, Applicants respectfully assert that the '364 publication does not teach or suggest the claimed features of a single plate including a convex portion extending a depth of at most one half a thickness of a plate or first material adjacent the concave portion, as recited in independent Claims 1 and 9. Rather, Applicants respectfully assert that Figure 2 of the '364 publication at most shows a portion extending a depth greater than an entire thickness of the asserted first material or plate 3a and 5a, which is two plates as compared to the claimed single plate, adjacent the portion.

Applicants respectfully assert that the claimed features recited in independent Claims 1 and 9 can provide numerous advantages. By way of specific non-limiting examples,

Applicants respectfully assert that the use of the claimed convex portion results in an improvement of at least about 50% in a female thread failure torque, as compared to an arrangement that does not use such a concave portion. Further, Applicants respectfully assert that the claimed convex portion results in an at least about 30% improvement in a loosening torque compared to the arrangement that does not include the convex portion. Thus, the use of the claimed convex portion permits the attachment of thinner sheets providing better mechanical characteristics than materials or plates that do not include such a convex portion.²

Further, the '364 publication has a female thread portion in the duplex plates, which results in a thickness of the plates being doubled. In the present invention, it is possible to provide the desired fastening strength with a single plate thread portion.

In view of the above discussion, Applicants respectfully request that the rejection of independent Claims 1 and 9 under 35 U.S.C. § 102(b) be withdrawn. Applicants therefore respectfully request the allowance of independent Claims 1 and 9.

Applicants respectfully assert that Claims 2-4 and 10-12 are allowable for the same reasons as independent Claims 1 and 9 from which they depend, as well as for their own features. Thus, Applicants respectfully request the allowance of dependent Claims 2-4 and 10-12.

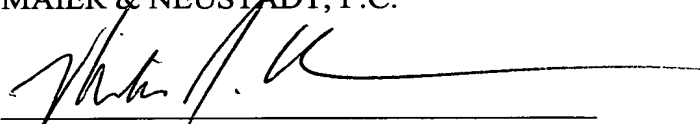
Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-4 and 9-12 is earnestly solicited.

² Please see from page 7, line 20 to page 10, line 10, of Applicants' originally filed specification, as well as original Figures 6 and 7.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,

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